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## THE THIRD GRADE

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The underlying motive of the work in third grade is the beginning of the development of a civic consciousness. The problems upon which all the work of the year is based are as follows:

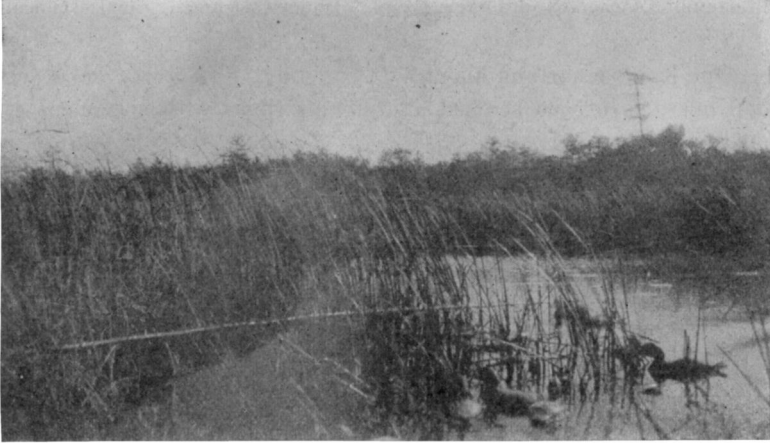
- I. Why did men start a settlement at this particular place?
- II. Why has that settlement grown into such a large city in so short a time?
- III. What problems did the people have to solve in changing the swamps and prairies of one hundred years ago into the city of today, and how did they meet them?
- IV. What problems are there left for us to solve today and tomorrow?

In the solution of these problems, all the subjects are so closely inter-related that it is difficult to pick out any one and say, "This is science," or "This is history." In fact, some of the material in the succeeding outline has already been published as part of an outline of work on the history of Chicago. Its repetition here is necessary to a complete outline of the work in science.

### *I. Why did men start a settlement at this particular place?*

From their readings in history, the children get the fact that the primary reason for the white men settling here was because it was a common meeting-place for the various tribes of Indians who lived in the surrounding region. This at once gives rise to the question, how the Indians came to hold their councils here—a question that can be answered best by science, in the study of the physical characteristics of the country. By modeling this section of the country in the sand- or delta-table, and by using a large relief-map of the United States, the children come to some realization of the accessibility of Chicago by reason of its situation. They also note that the various waterways were used as travel routes by the Indians, French voyageurs, and fur-traders.

Within an hour's ride on the train, we have a good reproduction of some of the physical conditions that existed in Chicago when white men first settled here. Therefore, a trip to the sand-dunes of Indiana gives us one starting-point for the science work. The abundant life



A SWAMP AT THE DUNES

in the swamps, both vegetable and animal, furnishes another obvious answer to the question, Why did the Indians come here? Plants, such as the wild rice, besides furnishing food for the Indians, attracted the game birds in countless numbers; and the birds, as an abundant food supply, in turn attracted the Indian hunters.

(a) FEATURES TO BE OBSERVED ON DUNE EXCURSION.

General Character of the Region.

Character of the Vegetation.—Color and falling of foliage.

Character and Indications of Wild Life.—Birds and animals.

Character of Swamp Soil.

Seeds and Methods of Distribution.—Milkweed (air currents); acorns (water currents); burrs (animals); witch-hazel (explosive power).

Birds.—Wild ducks, wild geese, snipe, sandpipers, kingfishers, herons, loons, grebes, red-wing blackbird, yellow-headed blackbirds.

(b) SPECIMENS TO BE COLLECTED.

Samples of Soil.—Vegetable mold, sand, clay, gravel.

Swamp Vegetation.—Rushes, cat-tails, wild rice, etc.

Dune Vegetation.—Foliage, fruits, grapes, prickly pears, cranberries. Seeds.

Animal Life in the Swamp.—Crayfish, snails, turtles, salamanders, water boatmen, larva of dragon-fly, larva of caddis-fly, minnows, etc.

(c) SUPPLEMENTARY EXCURSIONS.

To Skokie Marsh; source of the north branch of the Chicago river; on Chicago river and branches (to give general idea of water ways in and

around Chicago); drainage canal; Illinois-Michigan canal; Chicago portage.

One large aquarium, about 5 ft. x 2 in. x 1 ft. 5 in., and several small ones, have been stocked at different times with specimens collected on the excursions.

The following reports of various trips, written by the children, show how, by means of the excursions, the interest and curiosity of the children is aroused, and a beginning is made in training the powers of observation.

#### OUR TRIP TO THE SAND-DUNES

We went to Millers, Indiana, Friday, October 9. We met at the school at 7:40 that morning, and went down to the LaSalle Street Station. It took us about an hour on the train to reach Millers.



GENERAL VIEW OF THE DUNES

On the way, we saw some swamps and great quantities of tumble-weed. The leaves were turning red, and brown, and gold. Many trees were still green, and many of them were pine-trees.

It was beautiful day for our trip. The sun was shining, and it was warm. We walked about a mile along the road to the lake. On the way we crossed the Calumet river. It looked very swampy.

We climbed some dunes, and found a place to put our wraps. We then started out to see what the country was like. We climbed a high dune and saw the deep blue water of the lake, swamps, and sand dunes everywhere.



FUN ON THE DUNES

We found wild grapes, colored leaves, and many different kinds of bone. Helen found a turtle's egg on the edge of the swamp. It was white and about one and one-quarter inch long. It was oblong in shape. Some of the boys saw a snake.

After lunch we started to fish. We wanted to get some things for our aquarium. Many of us had nets and the director had a dredge to use in the swamps. We caught crayfish, tadpoles, frogs, leeches, newts, rock-fish and minnows. We found the larvae of the dragon-fly. We think the dragon-fly goes through three stages, just as the butterfly does. We are



DREDGING FOR SWAMP LIFE

going to keep it through the winter and see if it will change. One of the tadpoles was a bullfrog pollywog. The other, we think, will change to a green frog with gold buttons. We caught two kinds of snails. One was an oval oblong, and the other a flat coil. We caught whirligigs, water-boatmen, larvae of the May fly, and water-beetles. We also found four kinds of water-weeds. There was some wild rice in the swamp. Along the edge of the swamp we found gentians, the bottle gentian and the fringed gentian. Along the road we found prickly pear and witch-hazel. The witch-hazel had its flower and fruit on at the same time.

We started home at 3:15, and had a very good time that day.

### CLARK ROAD

We went to Clark Road. We took the Illinois Central and then changed to the electric car at Pullman. Clark Road is about two miles west of the lake, and southeast of Gary. We followed the road for a short distance when we got off the cars, and then turned north into the woods. We saw some alder-trees on the way. We went to get insects for our aquarium, but the swamps were dried up. We had a good day for our excursion. The air was cool and the sky was gray. It was a good day for walking. Clark Road is very different from Millers. There are no sand-dunes there, but there are ridges and swamps, and swamps and ridges.

### RIDGES

The ridges seemed to be all sand. We could see that where the railroad cut through. On top of the ridge the soil was black. We wondered how that happened. The trees were mostly oaks. The leaves were a deep red. Some were orange colored and some brown. We brought back many acorns. The second grade can use them to make acorn flour. Some of the beautiful green moss we gave to the seventh grade. We found some prickly pears. We brought back some of the fruit. The golden-rod seeds were just ready to fly. We saw some milk weed seeds, too. We found horsemint, wintergreen, witch-hazel, rose-hips, false indigo, bird's-foot violets in bloom and blazing-star on the ridges. We saw two bee-trees that had been cut down for honey.

### SWAMPS

In the swamps we found swamp-reed and some wild rice stalks. They both grow ten or more feet high. There were many cattails, and we picked some.

The wind blew the seeds about in the air, and it looked as if it were snowing. The button-bush grows along the edge of the swamps. We brought back two birds' nests that we found on the button-bush. One nest had a soft lining. It looks as if a little field mouse had made it. We found several cocoons. They were the cocoons of the *Promethea* moth. We brought back some swamp soil. It was very black and fertile looking. We are going to try to find out why the swamp soil is so different from the ridge soil.



ON THE RETURN TRIP

We did not get insects for our aquarium, but we found out many things about plants in the swamps and on the ridges, and had a very nice trip.

R. H. and M. P.

#### THE CADDIS-LARVA

The caddis-larva has a little house around him. Sometimes his house is made of plant-stems and hollow seeds, and sometimes little stones. When his house is made of plant stems or hollow reeds, he lives in a swamp, but when his house is made of little stones, he lives in swift-flowing streams. When he lives in swift-flowing streams, he cannot swim much, but the things he eats come with the stream.

The inside of his house is very soft. He has two or three hooks at the end of his body, and he hooks himself in. The caddis-larva eats smaller animals than he, and he is so juicy that fish like to eat him, and that is the reason he makes a house around himself. A hollow reed is not so good as a plant stem, because the plant stem hurts the fish's mouth.

M. P.

#### A TRIP TO SKOKIE MARSH IN MAY

Winthrop caught some leeches. We found many small crayfish. We caught some whirligigs in a small net at the surface of the water. We found many small oval oblong snails. We found fresh water shrimps. We found the larva of the caddis-fly. We heard and saw frogs. We saw red-winged blackbirds, a sora rail, and a meadow lark. We saw a scarlet tanager, red-headed woodpeckers, bluebirds, robins, and bluejays. We saw several garter-snakes. We picked spring-beauties, marsh-marigolds, a few purple and dog-toothed violets, hepaticas and skunk-cabbages.

G. C.

## LEECHES

The leech has a little pad at each end of its body, which is used for sucking blood. Years ago doctors used leeches to draw blood from people who were sick. Occasionally they are now used to draw blood from bruised or discolored places, like a black eye.

Leeches swim with a wave-like motion. To get around the aquarium without swimming, a leech fastens its pad at one end of the body to the side of the aquarium, stretches out, circling the loose end of its body about until it finds a place to fasten it, then it loosens the first end and again seeks a place for the loose end.

W. C.

## OUR AQUARIA

In one aquarium we have some newts and snails. The snails have hatched some eggs. In another aquarium we have a mud puppy. One of the boys caught it in Geneva. In another aquarium we have a large, white French snail. French people like to eat them. Mrs. Carley gave him some lettuce, and he ate nearly all of it. He has now begun to hibernate for the winter. In another aquarium we have some medicine leeches, and they are hibernating for the winter and are under the sand. In another aquarium, we have a catfish, and he is growing. In our big aquarium we have goldfish, silver-fish, and minnows. On the other side of the glass partition, we have a turtle, some small frogs, and a bullfrog, but we think the little frogs are under the sand. In a pan, we have an alligator. Virginia sent it to us from Florida.

O. T.

## OUR BULLFROG

Our bullfrog has not eaten all winter long. Last week I brought a little frog to school. We put him in the aquarium with the big bullfrog. Mr. Meyers came in to look at the aquarium, and he said to the bullfrog, "It's about time you were eating something, old fellow." And the bullfrog grabbed the little frog by the leg and swallowed him before Mrs. Carley could stop him. He pushed him into his mouth with his front paws. We think now that the little frogs which we thought were hibernating were eaten up. Today Mrs. Carley put a piece of meat on a thread and fastened it to the top of the aquarium. It fell into the water. When Mrs. Carley tried to pick it up, the bullfrog grabbed her finger and wouldn't let go. Then he grabbed the meat and swallowed it. It is easy to feed him now, with the meat on a thread, as he just pulls it off.

H. A.

The dune excursion gives a physical setting. From this follows the study of Indians' homes and industries—cooking, hunting, fishing. The result of the trapping and hunting of the Indians was a wealth of furs, which led to the coming of the fur-traders and the establishment of a trading-post and fort.



## STUDY OF ANIMALS CONCERNED IN FUR-TRADING

(a) Homes.—Food and covering; their relation to us (beaver, muskrat, lynx, badger, bear, wolf, otter, mink, skunk, fox, squirrel).

(b) Comparison and functions of teeth of various types of animals.—Incisors, canine teeth, molars.

In taking up the study of the animals hunted and trapped for their furs, after a general discussion, each child is allowed to select one animal for intensive study. Numerous books are available in the room, and on the blackboard is posted a schedule of definite references to books, chapters, and pages dealing with each animal. So the children are able to do a great deal of individual work and find considerable pleasure in learning of the homes, habits, and characteristics of the particular animal in which each is interested. Information gained in this way, is supplemented by frequent visits to the Lincoln Park Zoo, where the living animals are studied and sketched, and by the study of specimens in the Academy of Sciences.

Another helpful feature has been the exhibit of furs (some skins and some made-up pieces) loaned by Marshall Field & Co. at various times. The children learn to distinguish the different furs and develop a real interest in the study. The heroic side of the life of the fur-traders and trappers, their courage and cheerfulness in hardship and danger, their resourcefulness in meeting difficulties, furnishes an appeal that quickly arouses and holds the children's interest.

II. *Why has Chicago's growth been so rapid?*

(a) Modeling in Sand-Table.—(To show importance of Chicago geographically).

(b) Relief Maps of Region of Great Lakes and of the United States.—Routes of French to Chicago; routes to Gulf of Mexico.

(c) Pioneer Transportation and Reasons for Coming West.—Possibilities of western country; pictures of New England farms and Mississippi valley farms, contrast; routes of travel in pioneer days; methods of travel by prairie schooners, ox-carts, sledges, flatboats, pack-horses. What utensils did they bring with them? What kind of men were they? Map of United States, showing water routes and mountain trails used.

(d) Modern Transportation.—Chicago's importance as a railroad center; Illinois tunnel.

(e) Industries.—Industrial life involved in supplying our needs; raw material and sources—how prepared by us; river excursion to view industries; grain elevators; lumber yards; manufacturing districts; lighthouse and life-saving station; relation of Chicago river to Chicago portage (Des Plaines river and Illinois river).

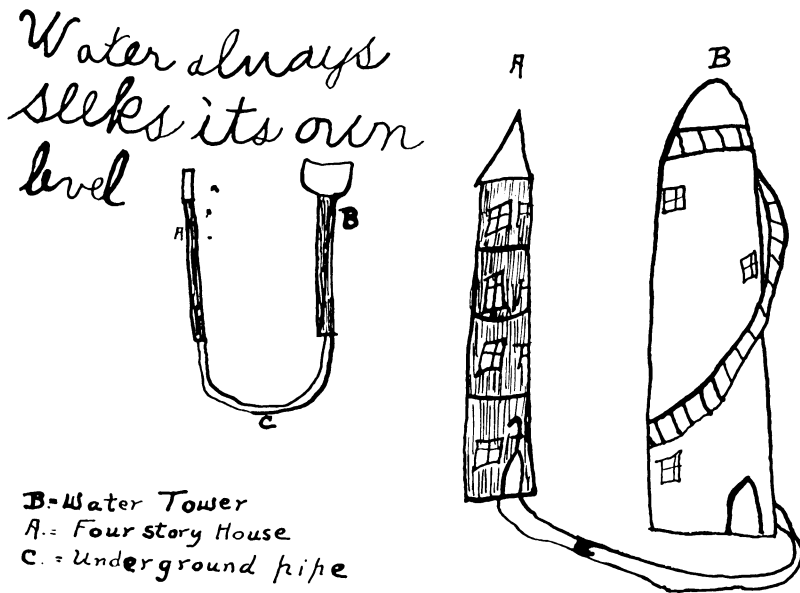
(f) Imaginary Trips with Francis W. Parker Fast Freight.—Stock-car taken to Texas Ranch for cattle; returns to Stock Yards; refrigerator-car to carry fresh meat east; coal-car trip to Illinois coal mine; box-car to Minnesota for grain and flour; furniture-car to Michigan for furniture.

### III. What civic problems arose in the development of the city?

(a) Water Supply.—Different methods used to obtain pure water; water-tower (experiment to show that water seeks its own level); purifying water (experiment showing distillation of water); visit to pumping-station and crib.

#### PURIFYING SALT WATER

We tried to purify salt water. Charles suggested boiling the salt water. We did this, but it did not purify it, because it left the salt in the beaker, and the water evaporated. Then some one said, "Strain it." We strained it with filter paper, but that only got it clear. It still tasted very salty. Winthrop said to catch the steam. So we took a saucer and held it over the beaker. The vapor gathered on the saucer. As the saucer was cool, the steam turned into water. The water was pure.

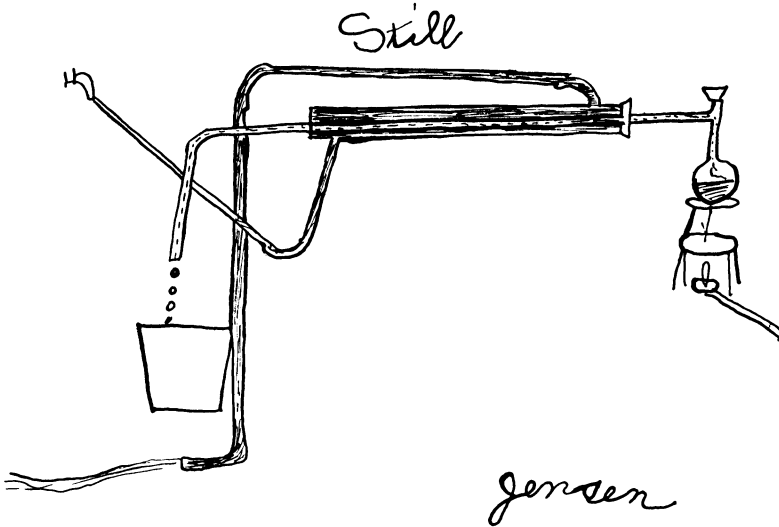


CHILD'S DIAGRAM OF CITY WATER SYSTEM

(b) Street Problems.—Drainage (lifting Chicago out of the mud).

(c) Illumination.—Candle-making, dips and molds; candles made of paraffin, spermacetti, wax, tallow, bayberry, and tested for illuminating value.

*Experiment.*—Heating soft coal in clay pipe, collecting the gas and observing the oily tar and residue of coke.



CHILD'S DRAWING OF A STILL

(d) Harbor Problems.—Current of lake; necessity for piers, government piers, and light-houses.

#### IV. *What are some of the present and future needs of Chicago?*

- (a) More Playgrounds.
- (b) Electrification of Railroads.
- (c) Better Roads.—Completion of Boulevard System.
- (d) Adequate Harbor.
- (e) Adequate Market Facilities.
- (f) Subway.
- (g) Reforming Municipal System.

#### V. *Miscellaneous Topics.*

(a) Study of Rivers.—Experiments with water running on sand in delta-table to show formation of gullies and of V-valleys.

Source of river; shape of basin; tributaries; canyons; flood-plains; deltas; use of river to man, animals, and vegetation.

(b) Study of Underground Water in Connection with Wells.

(c) Study of Soil.—Sand; gravel; clay; loam; relation of soil to garden.

(d) Harvesting Garden Crop.—Employment of farmer; employment of farmer's wife; preservation of foods for winter; comparison of wild and cultivated foods.

(e) Study of Type Trees.—Oak, elm, pine, maple, poplar. Uses of sap, maple syrup and turpentine. Uses of wood; strength tests.

(f) Weather Record.—Prevailing wind learned as result of daily observations.

(g) Sunshine Chart.—Monthly summary of chart is made, and daily painting typical of the month is kept as a record.

## April Sunshine Chart

Fair Days =  $1 + \frac{1}{12} + \frac{2}{12} + \frac{1}{12} + \frac{1}{12} + 1 + \frac{1}{12} + 1 + \frac{1}{12} + 1 + \frac{1}{12} + \frac{2}{12} + \frac{1}{12} + 1 + \frac{1}{12}$   
 $= 13\frac{1}{2}$ .

Cloudy Days =  $\frac{2}{12} + \frac{3}{12} + \frac{1}{12} + \frac{4}{12} + \frac{1}{12} + \frac{4}{12} + \frac{1}{12} + \frac{3}{12} + \frac{2}{12} + \frac{3}{12}$   
 $= 9\frac{1}{2}$ .

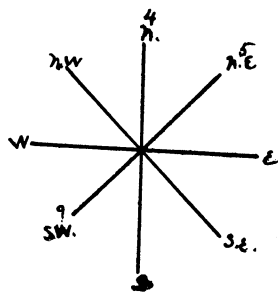
Rainy Days =  $\frac{1}{12} + \frac{2}{12} + 1 + \frac{1}{12} = 2\frac{1}{2}$ .

Blear Days =  $\frac{1}{12} + \frac{1}{12} = \frac{1}{6}$ .

The average temp. for the first week is 46 the average temp for the second week is  $42\frac{4}{5}$  for the third is  $48\frac{4}{5}$  for the fourth is  $44\frac{4}{5}$ .

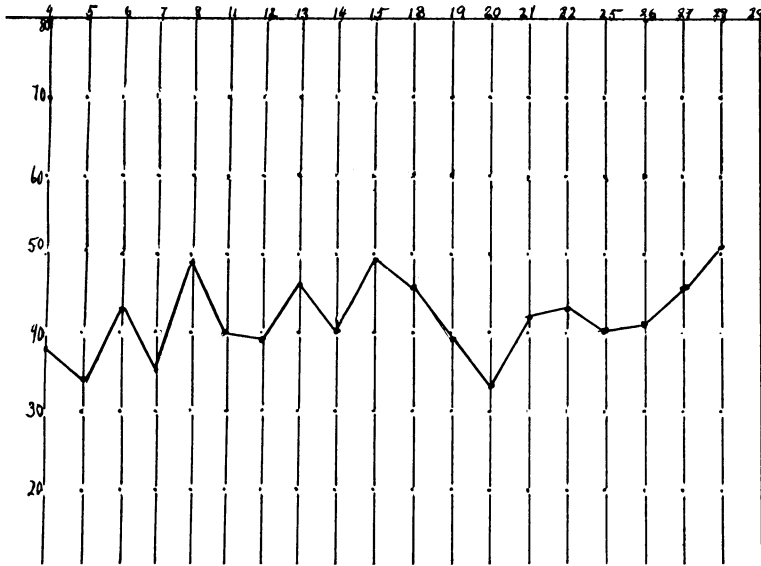
1.	2.	3.	4.
38°	40°	46	40
35	39	39	41
43	46	32	46
35	40	42	51
49	49	43	51
<u>5200</u>	<u>5214</u>	<u>5202</u>	<u>5224</u>
40	42 $\frac{4}{5}$	40 $\frac{4}{5}$	44 $\frac{4}{5}$

The average temp for the month is 42

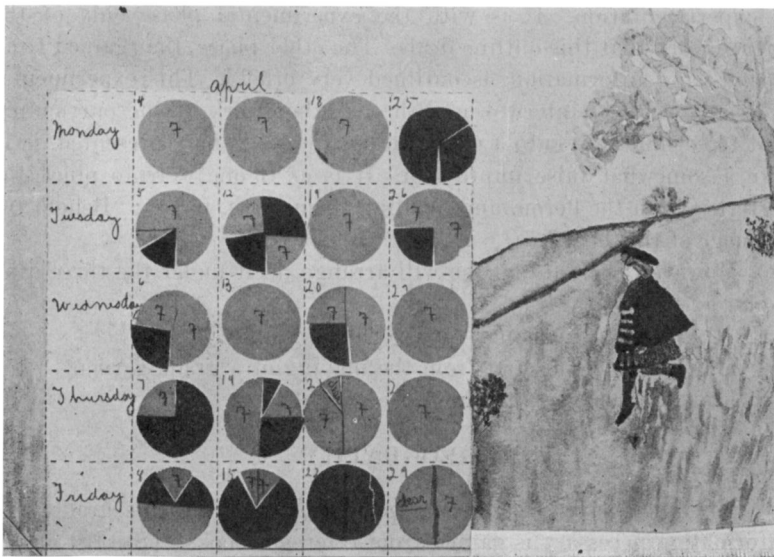


The wind we have had the most of since Jan. is the S.W. wind

THE APRIL SUNSHINE CHART



THE TEMPERATURE GRAPH FOR APRIL



SUMMARY OF WEATHER RECORD